

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

March 10, 1857.—Dr. Gray, F.R.S., in the Chair.

CHARACTERS OF SOME APPARENTLY NEW SPECIES OF AMERICAN ANT-THRUSHES. BY PHILIP LUTLEY SCLATER, M.A., F.L.S., &c.

1. FORMICARIUS TRIVITTATUS.

Supra fusco-cinnamomeus, subtus clarior, gula pallidiore: alis caudaque nigris cinnamomeo tinctis, illarum tectricibus minoribus et majoribus fascia terminali et remigibus ipsis fascia mediali alba præditis, itaque alis trifasciatis: oculorum ambitu seminudo: rostro et pedibus nigris.

Long. tota 7·0, alæ 3·4, caudæ 2·5.

Hab. In ripis fl. Amazonum.

Mus. Brit.

The only individual of this species which I have yet seen is that in the British Museum. It is easily recognizable among its congeners by its thrice-banded wings. I am now acquainted with seven birds which I consider to be probable members of this genus, viz.—(1.) CAYANENSIS, Bodd. Pl. Enl. 821 (*colma*, Gm. et Bodd., *tetema*, Licht., *fuscicapilla*, Vieill., *ruficeps*, Spix), ex Guiana et Brasilia. (2.) ANALIS (Lafr. et d'Orb.), Voy. d. l'Am. Mér. Ois. pl. 6*. f. 1, ex Bolivia, Cayenna et ins. Trinitatis. (3.) NIGRIFRONS, Gould, P. Z. S. 1855, p. 68, ex Nov. Grenada et fl. Amazon. (4.) MONILIGER, Sclater, P. Z. S. 1856, p. 294, ex Mexico. (5.) TRIVITTATUS. (6.) ERYTHROPTERUS, Gould, P. Z. S. 1855, p. 69. (7.) NIGROMACULATUS (Lafr. et d'Orb.), Voy. d. l'Am. Mér. pl. 6*. f. 2, ex Bolivia et fl. Amazon sup.

The last three birds have the space round the eyes more or less denuded, and would form the subgenus *Phlegopsis*, Reichb., of which, I believe, *F. nigromaculatus* is the type. In that very peculiar member of this family *Pyriglena nudiceps* (*Myiothera nudiceps*, Cassin, Pr. Ac. Sc. Phil. v. p. 106. pl. 6), this formation is developed to a still greater extent, the whole top of the head being naked.

2. CONOPOPHAGA CASTANEICEPS.

Conopophaga ardesiaca, Tsch. Faun. Per. p. 179, et Sclater in P. Z. S. 1855, p. 145, nec Lafr. et d'Orb.

Supra olivascenti-brunnea; pileo castaneo, frontem versus lætiore: lateribus capitis et gula nigricanti-cinereis: penicillum post-oculari album: subtus cinerea, abdomine medio albescentiore: lateribus olivaceo indutis: mandibula superiore nigra, inferiore flava, pedibus brunneis.

Long. tota 4·4, alæ 2·9, caudæ 2·7.

Hab. In Nova Grenada, Bogota et in Peruvia Orientali (*Tsch.*).

Mus. Brit. et P. L. S.

This is a typical *Conopophaga*, with the characteristic white pencil

of feathers on the sides of the head. Trusting to Tschudi's identification of a specimen collected by him, which is now in my collection, I had considered it to be d'Orbigny's *C. ardesiaca*. But upon examining the type of that species in the French National Collection I found such was not the case. That bird does not possess the chestnut-brown cap or darker cinereous colour of the throat belonging to the present species, but is more uniform in its colouring both above and below.

There is a specimen of this bird in the British Museum from Bogota.

M. O. des Murs, in the Ornithology of the Voyage of Castelnau and Deville, has described and figured another *Conopophaga*, somewhat resembling the present, *C. peruviana*, pl. 16. f. 1. But this bird has spots upon the wings and a varied back.

3. HYPOCNEMIS ELEGANS.

Hypocnemis — ?, Sclater, P. Z. S. 1855, p. 147.

I have lately seen other specimens of this bird, and have one in my own collection—a Bogota skin. Though closely allied to *H. melanosticta*, I cannot consider it otherwise than specifically distinct, and therefore propose a name for it: I have already given its characters in the Proceedings of the Zoological Society for 1855.

4. MYRMECIZA HEMIMELÆNA.

♂. *Castaneus: dorsi medii pennis basi albis, inde nigris, apice castaneis: capite toto undique et corpore subtus ad medium pectus nigris: ventre medio albido: campterio summo et maculis tectricum alarium apicalibus albis: rostro nigro, pedibus flavis: cauda rufo-castanea unicolore.*

♀. *Obscure olivacea rufo tincta: interscapulii pennis basi albis: dorso postico, alis et cauda rufis: alarum tectricibus nigris, sicut in mari albo aut fulvescenti-albo guttatis: subtus læte ferruginea, pectore et ventre medio pallidioribus: lateribus et crisso rufescenti-olivaceis.*

Long. tota 5·0, alæ 2·4, caudæ 1·7.

Hab. In Bolivia (*Bridges*).

Mus. Brit.

There are single specimens of both sexes of this bird in the British Museum, which are the only examples I have yet seen. It may be best arranged near *Myrmeciza loricata*, the type of the genus, with which it agrees generally in form, although the tail is comparatively much shorter.

5. FORMICIVORA HÆMATONOTA.

Supra brunnea, dorso medio rubro, hoc colore uropygium versus dilutiore: alarum tectricibus nigris, omnibus macula terminali pallide cervina præditis, secundariarum externarum apicibus eodem colore obsolete terminatis: subtus cinerea, gula nigra maculis triangularibus albis aspersa: ventris lateribus et crisso

pallide brunneis : cauda unicolore brunnea : rostro nigro, pedibus brunneis.

Long. tota 4·0, alæ 2·0, caudæ 1·2.

Hab. Chamicurros in ripis fl. Huallaga in Peruv. Orient. (*Hauwell*).

Mus. Brit.

Obs. Similis *F. gulari* (Spix, Av. Bras. ii. t. 41. f. 2) sed dorso medio rubro nec cinnamomeo, et colore subtus dilutius cinereo dignoscenda.

ON THE SPECIES OF CROCODYLUS INHABITING THE RIVERS KWÓRA AND BÍNUË (NIGER AND TSADDA) IN CENTRAL AFRICA.
BY DR. BALFOUR BAIKIE, F.R.Geog.S. &c.

Among the Zoological collections which I made during my visit to the rivers Kwóra and Bínuë in 1854, were several skulls of Crocodiles, varying in length from 14 to 26 inches. A careful comparative examination of these shows them all to be possessed of similar characters; but on attempting to refer them specifically, I have experienced considerable difficulty, their proportional measurements not agreeing with any hitherto described. Two African species of *Crocodylus* are already known,—*C. vulgaris*, the Nilotic or Egyptian Crocodile, and *C. marginatus* of Southern Africa. Of these, according to the best recent authority, namely Dr. Gray, the characters are,—

C. vulgaris.—“Head elongate, triangular, flat, smoothish above, narrow, tapering at the sides, nearly twice as long as the width of the head behind; muzzle at the notch nearly two-thirds the width of the forehead, at the ninth tooth as wide as half the distance between the eyes and nostrils; forehead flat, with nearly parallel sides.”

C. marginatus.—“Head elongate, triangular, rather convex, rounded, sides slightly swollen behind the notch, half as long again as the width of the head behind; muzzle at the first notch as wide as the forehead, and at the ninth tooth as wide as two-thirds the distance between the eyes and nostrils; forehead deeply concave, with the sides high, prominent and nearly parallel; dorsal plates very strongly keeled.”

I shall now describe generally the skulls which I brought home, giving the measurements of four of them; from which it will be seen, that while in various prominent points they more resemble the latter, yet in proportional measurements they approach more nearly to, while not altogether agreeing with, *C. vulgaris*, thus showing that in many characters they are intermediate, and thus either lowering these two into mere varieties, or what is, I believe, more probable, establishing for themselves specific characters.

Head elongate, oblong, somewhat triangular, rather convex, especially posteriorly, rounded, upper surface rough, sides distinctly swollen behind the notch; length more than twice the width of head behind; forehead slightly concave, sides not prominent, converging anteriorly; muzzle at notch nearly two-thirds the greatest width of

forehead; at the ninth tooth more than two-thirds the distance between the eye and nostrils.

Measurements.

	No. 1.	No. 2.	No. 3.	No. 4.
	in.	in.	in.	in.
Extreme length	26	24 $\frac{1}{2}$	22 $\frac{1}{2}$	21
Greatest width behind	12 $\frac{3}{4}$	12	11 $\frac{1}{8}$	10 $\frac{1}{4}$
Distance from eye to nostril.	10 $\frac{3}{4}$	10	9	8 $\frac{3}{4}$
Breadth at ninth tooth	7 $\frac{3}{4}$	6 $\frac{1}{2}$	6 $\frac{1}{4}$	5 $\frac{3}{4}$
Breadth at notch	4 $\frac{1}{4}$	3 $\frac{3}{8}$	3 $\frac{5}{8}$	2 $\frac{3}{4}$
Width of forehead, anteriorly.	5	4 $\frac{1}{2}$	4 $\frac{1}{8}$	4
Width of forehead, posteriorly	6 $\frac{1}{2}$	5 $\frac{3}{4}$	5 $\frac{1}{4}$	5
Extreme length of lower jaw ..	29	27	24 $\frac{1}{2}$	—

The proportions of all these correspond almost exactly, and I have ascertained the proportional measurements of a smaller one to be the same, although from its being in pieces and not yet put together, I have not time to take the exact dimensions. They show the Crocodile from the Bínuë to be proportionally longer than *C. vulgaris*, and much more so than *C. marginatus*, to be in form of upper surface and of forehead near the latter, but without the prominent sides to the forehead,—also in breadth at the ninth tooth to agree with *C. marginatus*, while the converging shape of the forehead differs from both.

I shall add some few other general characters derived from these skulls:—Cranial fossæ somewhat oblong and ear-shaped, converging anteriorly, and almost touching by their inner and anterior margins, the outer side being nearly straight. Orbits with a slight notch anteriorly. Nasal foramen broadly pyriform, and almost quadrilateral. Foramina for the two anterior teeth converted in old specimens into deep notches. Articulating extremities of lower jaw much curved inwards.

I have compared these skulls with twelve others of Indian and American species, from all of which they are quite distinct.

The ninth upper tooth of Crocodiles is said to be enlarged like a canine, but this is not strictly correct. I have examined the dentition in eighteen skulls of various species; in the lower jaw there are always nineteen teeth, but in the upper jaw the number in the adult is seventeen on either side, while in the young it is eighteen. This is owing to the second incisor being deciduous, and in old skulls the socket is completely obliterated by the enlargement of the foramen for the two anterior teeth. Thus in old animals there are only four teeth in each intermaxillary bone, while in younger individuals there are always five. So, more strictly, it is the tenth and not the ninth upper tooth which is enlarged.

The characters which I have above enumerated seem to me distinctive, and possibly on further investigation, when the entire animal is examined, and its external characteristics determined, it may prove a new species. The Crocodiles which I saw on the mud banks, or swimming about in the river, appeared of a dark green colour.

Adanson mentions two apparently from the upper parts of the Niger, which he distinguished—"Crocodile vert du Niger" and "Crocodile noir du Niger." Whether either of these resembles my specimens I have no means of ascertaining; but Cuvier speaks of African Crocodiles "qui ont la tête un peu plus allongée à proportion de sa largeur," though he adds, "et un peu plus plate, ou plutôt moins inégale, à sa surface." If this prove to be distinct, I would suggest for it the specific designation *C. Binuensis*, from the name of the river whence I obtained the specimens.

April 28, 1857.—John Gould, Esq., F.R.S., V.P.Z.S., in the Chair.

DESCRIPTIONS OF THREE NEW AND VERY BEAUTIFUL SPECIES OF BIRDS, FROM GUATEMALA AND FROM THE ISLAND OF LOMBOCK. BY JOHN GOULD, ESQ., F.R.S., V.P.Z.S. ETC.

COTINGA AMABILIS.

Male. Head, lores, line beneath the eye, all the upper surface, lesser wing-coverts, upper tail-coverts, sides of the chest, band across the breast, flanks, vent and under tail-coverts fine verditer blue; wings dull black, the greater coverts, spurious wing and the secondaries margined with verditer blue; tail dull black, margined externally with dull verditer blue; chin, throat and centre of the abdomen very rich purple.

Female. Upper surface greenish-brown, each feather tipped with greyish-white; under surface greyish-white, with dark brown centres to the feathers of the breast, upper part of the abdomen, and flanks; vent and under tail-coverts dull white.

Total length, 8 inches; bill, $\frac{2}{4}$; wing, $4\frac{1}{2}$; tail, $2\frac{3}{4}$; tarsus, $\frac{7}{8}$.

Hab. Guatemala.

Remark.—The *Cotinga amabilis* forms one of the most beautiful members of this lovely genus of birds, and affords the first instance of a species being discovered to the northward of the Isthmus of Panama. It is allied to *Cotinga cincta* and *C. Maynana*; the chest being crossed by a band as in the former, which it also resembles in the black colouring of the under surface of the wing, while it assimilates to the latter in the peculiar tint of the verditer blue of the upper surface and flanks.

For a knowledge of this lovely species we are indebted to the researches of George Ure Skinner, Esq., than whom no one has done more towards making us acquainted with the rich ornithological and botanical treasures of the fine country to which this bird belongs.

HALCYON FULGIDUS.

Head, cheeks, back of the neck, back, wings, flanks and under tail-coverts deep black, washed with rich ultramarine blue on the back of the neck, back and wings; rump-feathers glaucous or chalky white, with black bases, and with a narrow line of blue between the

black and the white portion, which alone is seen; tail deep ultramarine blue; chin, breast, and abdomen white; bill and feet coral-red.

Total length, $12\frac{1}{2}$ inches; bill, $2\frac{1}{4}$; wing, $5\frac{1}{4}$; tail, 5; tarsus, $\frac{3}{4}$.

Hab. The Island of Lombock.

Remark.—This is an exceedingly fine species, of which I have not been able to find a description. I am therefore induced to believe that it is new: still it may be contained in the Leyden Collection; but on this point I have consulted Mr. Frank, who is well acquainted with its rich stores, and he tells me that he has no recollection of it.

PITTA CONCINNA.

Head, back of the neck, cheeks, chin and stripe down the centre of the throat velvety black; from the nostrils over each eye a broad mark of deep buff, posterior to which is a narrower one of pale glaucous blue; back, tail and wings dark grass-green; lesser wing-coverts and a band across the rump glossy verditer blue; primaries and secondaries black, the fourth, fifth and sixth of the former crossed by a band of white near their base, and all the primaries tipped on the external web with olive-grey; upper tail-coverts black; under surface delicate fawn-colour, becoming much paler where it meets the black of the cheeks and throat; centre of the abdomen black; vent and under tail-coverts fine scarlet; bill black; feet fleshy.

Total length, 6 inches; bill, 1; wing, 4; tail, $1\frac{1}{2}$; tarsus, $1\frac{3}{8}$.

Hab. The Island of Lombock.

Remark.—This bird ranks as one of the smaller species of this particular section of the group, it being even less than the *Pitta brachyura* of authors, to which it bears a general resemblance, but from which the black colouring of its throat will at all times distinguish it.

For this and the preceding species we are indebted to the researches of A. R. Wallace, Esq.

May 12, 1857.—Dr. Gray, F.R.S., in the Chair.

ON *PARUS MERIDIONALIS* AND SOME OTHER SPECIES MENTIONED IN THE CATALOGUE OF BIRDS COLLECTED BY M. SALLÉ IN SOUTHERN MEXICO. BY PHILIP L. SCLATER, M.A., F.L.S., ETC.

In the Catalogue of Sallé's Mexican Collection, read before the Society in July last, I described a new species of Titmouse under the name of *Parus meridionalis*. Not having at that time within my reach specimens of *Parus atricapillus* of the United States, it was not without hesitation that I separated the Mexican species from that bird. I am now, however, able to exhibit to the Society specimens of *Parus atricapillus* which I obtained in North America last autumn, and I think that a comparison of them with the type of my *Parus meridionalis* (which M. Sallé has again kindly placed in my hands) leaves no doubt that these two *Pari* are, as I had anticipated,

really distinct, although closely allied species. In its upper plumage *Parus meridionalis* differs from *P. atricapillus* in having the back deeper cinereous without any tinge of brown—the narrow outer edgings of the secondaries are brownish and not white, and the black does not extend so far down the nape. Below, the plumage is also much darker; the whole abdomen and crissum being of a nearly uniform rather mouse-coloured cinereous, with a pale whitish medial line. In *Parus atricapillus* the whole middle of the belly is much lighter and more white, and the sides are deeply tinged with pale rufous.

There is not much difference in the size of the two species, but the tail of *Parus meridionalis* is slightly longer.

Mr. Gould's collection contains an example of *Parus meridionalis* also from Mexico.

With regard to other species contained in the same catalogue, I have to state that *Cyanocitta floridana* (sp. 135) is probably an immature bird of *C. ultramarina* (Temm.).

I have compared specimens of *Passerculus zonarius*, Bp. (sp. 187) with examples of *Peucea Lincolni*, which I obtained in the United States, and can discover no difference between them, and I consider these two names to be synonymous.

The bird named *Coturniculus Henslowii* (sp. 187), upon further comparison, does not seem to be distinct from the ordinary *C. passerinus*, of which I also possess specimens from Guatemala.

ON THREE NEW SPECIES OF THE GENUS TODIROSTRUM.

BY PHILIP LUTLEY SCLATER, M.A., F.L.S., ETC.

Sir William Jardine has kindly lent me some specimens of birds of the genus *Todirostrum* out of a collection received by him a short time ago through Professor Jameson of Quito from the Rio Napo. They were obtained in that locality, as I have reason to believe, by Don Villavicencio, a Naturalist who was for some time resident at Porto del Napo, on the Upper Rio Napo, where the Italian traveller Osculati mentions having seen him in 1847. Two of them appear to be certainly undescribed. The third is not in a very good state of preservation, but I think it may possibly be referable to Dr. Hartlaub's *T. rufilatam*.

1. TODIROSTRUM CALOPTERUM, n. s.

Supra flavescenti-olivaceum; pileo et cauda nigris: alis nigris, harum tectricibus læte flavis, campterio intense badio; secundariis ultimis extus flavicante limbatis: subtus flavum; gutture albo: tectricibus subalaribus flavidis: rostro nigro: pedibus pallidis.

Long. tota 3·6, alæ 1·9, caudæ 1·2.

Hab. In rep. Equatoriana in ripis fl. Napo.

Mus. Gul. Jardine, Baronetti.

This is a typical *Todirostrum*, but with the beak rather shorter and broader than in *T. cinereum*. The only known species which it at all resembles in colouring is *T. nigriceps*, mihi (P. Z. S. 1855,

p. 76. pl. 84. fig. 1), from which it may be at once distinguished by the fine deep chestnut colouring of the bend of the wing. It is, I think, the most beautiful species of this group yet discovered.

2. *TODIROSTRUM CAPITALE*, n. s.

Supra olivaceum, pileo rufo; alis caudaque nigris extus olivaceis, secundariis ultimis et caudæ reatricibus lateralibus in pogonio externo lactescenti-albo late limbatis, hoc colore extus tenuiter olivaceo marginato; subtus cinerascenti-album, mediatiter albescens, ventre medio et tectricibus subalaribus flavicantibus; rostro superiore nigro, inferiore flavido, pedibus fuscis.

Long. tota 3·7, alæ 1·8, caudæ 1·2.

Hab. In rep. Equatoriana in ripis fl. Napo.

Mus. Gul. Jardine, Baronetti.

The rufous crown of this species distinguishes it from every one of its congeners except *T. ruficeps*, from which it may be separated by the want of the dark pectoral band, and other easily perceived characters.

The shape of the bill is typical, but rather broader and flatter than in *T. cinereum*.

I have also lately obtained two specimens of another species of this genus, not quite so typical in form or striking in plumage as the last two, but hardly to be placed without the limits of the group. This I propose to call

3. *TODIROSTRUM EXILE*, n. s.

Supra olivaceum, alis caudaque fusco-nigris; illarum secundariis et tectricibus flavicanti-olivaceis, hujus reatricibus olivaceo extus marginatis: loris et capitis lateribus fusco-albidis: subtus margaritaceo-album, lateribus flavido tinctis; gutture et pectore striis paucis elongatis fuscis obsoletissime flammulatis: rostri nigri basi pallida, tarsis gracilibus et cum pedibus colore carneis.

Long. tota 3·5, alæ 1·7, caudæ 2·6.

Hab. In Nova Grenada.

The first example of this species that came under my notice was received from MM. Verreaux of Paris in 1854. It is labelled "New Grenada." I purchased a second not quite mature from Mr. Hurst of Albany in the State of New York. A third is in the British Museum, and is evidently a Bogota skin. The bill of this *Todirostrum* is smaller than in the ordinary run of the species, but of nearly the same form, though not quite so flat. The tail is proportionately rather longer, the tarsi very slender.

DESCRIPTIONS OF SOME NEW SPECIES OF LEPIDOPTEROUS INSECTS FROM NORTHERN INDIA. BY FREDERIC MOORE, ASSISTANT MUSEUM EAST INDIA COMPANY.

1. *PIERIS NAMA*, E. Doubleday, MS.

Male.—Upper-side white; fore-wing with a narrow brown line

along costal margin, curving and widening across near the middle of the wing, and again tapering to posterior angle; hind-wing tinged with black (as if from intensity of that colour on the under-side) along the outer margin; where the veinlets are dark brown.

Female.—Brown, with three longitudinal white streaks in middle of fore-wing, and two in the hind-wing: these streaks in some specimens being confluent and occupying nearly the whole of the middle of both fore- and hind-wings; under-side, along costal margin and widening to the outer margin of fore-wing, greenish-yellow, the rest white; hind-wing greenish-yellow, darker on the veins, and nearly white along discoidal cell towards anterior angle.

Expanse of wings $2\frac{1}{4}$ to 3 inches.

Hab. Darjeeling; Sylhet; Bootan. In Mus. East India Company.

Remark.—The late Mr. E. Doubleday was acquainted with the male insect only, to specimens of which in the British Museum he applied the above MS. name; I have now the pleasure of characterizing both sexes.

2. PIERIS SETA, Moore.

Upper-side blackish-brown; fore-wing with two rows of narrowish white marks, two lengthened marks between median and submedian veinlets, and four small spots within discoidal cell; hind-wing with a marginal row of whitish spots, another row from costal margin widening towards the anal angle, abdominal margin broadly whitish, the latter tinged with yellow, also a white linear mark in discoidal cell. Under-side as above, but with all the markings on the hind-wings yellow. Wings shaped as in *P. Thestylis*. Expanse of wings $3\frac{1}{8}$ inches.

Hab. Bootan. In Mus. East India Company.

3. PIERIS SANACA, Moore.

Upper-side white; fore-wing with the veins and veinlets broadly clouded with black, leaving only a row of lanceolate white spots on the outer margin, and another row of more linear-shaped marks extending across the disc; hind-wing with the veins and veinlets sharply defined with black, discoidal and median veins clouded with black, the latter broadly so; also a marginal row of angular lunate marks; anterior base and anal angle bright yellow. Under-side: fore-wing as in the upper-side, but the white markings more clearly defined, those near the anterior angle being yellowish; hind-wing with the dark colour broader, and the white spaces nearly covered with yellow. Shape of wings as in *P. Belladonna*.

Expanse of wings $3\frac{1}{4}$ inches.

Hab. Darjeeling. In Mus. East India Company.

4. PIERIS INDRA, Moore.

Upper-side dark brown; fore-wing with a central longitudinal space of white from the base, also two small white spots near ante-

rior angle ; hind-wing with the anterior base brownish greenish-white, also with two white spots near anterior angle. Under-side : fore-wing with a broad irregular fascia from middle of costal margin to posterior angle ; anterior angle chrome-yellow, with some white dividing the two colours ; basal half white, tinged with straw-yellow along discoidal cell ; hind-wing chrome-yellow, and minutely irrorated with brown ; anterior half of discoidal cell and space between each veinlet near outer margin white, also a dark brown dot on disco-cellular veinlet. Wings shaped as in *P. Paulina*. Expanse of wings 3 inches.

Hab. Darjeeling. In Mus. East India Company.

The nearest ally of *P. Indra* appears to be *P. Lalage*, E. Double-day, Diurnal Lep. t. 6. f. 5, also from N. India.

5. *PIERIS DURVASA*, Moore.

Male.—Upper-side white ; fore-wing from middle of costal margin, curving transversely, apically, and scolloped to near end of outer margin, black, and having near the apex some white marks, generally three, the outer ones being sometimes indistinct ; base of costal margin and body greenish ; on the middle of disco-cellular veinlets is a round black spot, and another more quadrate spot between the first and second median veinlets, the latter slightly touching at the angle the scolloped black outer margin.

Female.—Black colour broader, the quadrate spot larger and broadly confluent at the angle with the outer margin, thus forming a white spot on middle of outer margin ; hind-wings of female with a marginal row of blackish spots, the extreme margin and anal angle being yellowish-white. Under-side : apex of fore-wing pale yellow, the black colour forming only a curved transverse bar, besides the two black spots ; hind-wings wholly pale yellow, and having a small disco-cellular black spot ; body yellowish.

Expanse of wings $2\frac{1}{2}$ to $3\frac{3}{8}$ inches.

Hab. Darjeeling, Assam. In Mus. East India Company.

The form of the wings of *Pieris Durvasa* is the same as in *P. Paulina* and *P. Pandione*.

6. *PAPILIO JANAKA*, Moore, n. sp.

Upper-side black ; hind-wing with a white patch on the disc, which is divided by three of the veinlets, thus forming four separate patches, the outer one on each side being the shortest, and the two nearest the abdominal margin being tinged with red ; three submarginal and three marginal lunules and circular mark at anal angle red ; tail with two red spots. Under-side black ; fore-wing with the base red ; hind-wing with patch on the disc as on upper-side, but the portion nearest abdominal margin nearly covered with red, which colour is continued upwards and downwards, occupying the base of the wing and the whole space between the third median veinlet and submedian vein ; lunules as above, but larger, and a fourth submarginal one appears between the discoidal and first median veinlets ; tail spotted

as above ; cilia between the angles white ; head, neck, body beneath and sides red.

Wings shaped as in *P. Bootes*, Westw. Arc. Ent. t. 31.

Expanse of wings 5 inches.

Hab. Darjeeling. In Mus. East India Company.

Remark.—*Papilio Bootes* appears to be a near ally of *P. Janaka*.

May 26, 1857.—Dr. Gray, F.R.S., V.P., in the Chair.

DESCRIPTION OF CHINESE SHEEP SENT TO H. R. H. PRINCE ALBERT BY RUTHERFORD ALCOCK, ESQ., H.M. VICE-CONSUL AT SHANGHAI. PRESENTED BY H. R. H. TO THE ZOOLOGICAL SOCIETY IN APRIL 1855. BY A. D. BARTLETT, ESQ.

These Sheep differ from all others that I have seen in not possessing external ears. In size they are equal to ordinary sheep ; the wool is perfectly white, rather *coarse and mixed with long hairs* ; the head and face are smooth, and covered with white hair ; they have no horns ; the tail is short, rather broad, and turned up at the tip ; the profile is very convex.

My attention was first called to these sheep from the fact of their great reproductive power. I find they breed twice in a year, and produce four and sometimes five at a birth, the three ewes now in the Society's Gardens having this spring produced *thirteen lambs*. These lambs are very easily reared by hand, and are perfectly hardy. Upon referring to Miss Corner's 'History of China,' published in 1847, it appears that since the introduction of the cotton plant into China (which took place during the Ming dynasty, about 500 years ago), the breeding and rearing of sheep have been neglected, as the following extract will show :—

“The extended cultivation of cotton was one of the causes that led to the almost entire disappearance of sheep from the southern provinces, for it was found that it would take much more land to supply a certain number of persons with mutton and wool, than with rice and cotton. Then the pastures were gradually turned into rice and cotton plantations, while sheep were banished to the mountains and less fertile parts of the country. For the same reason cattle, horses, and other domestic animals are scarce ; the few that are kept for the purposes of husbandry are poor and ill-fed ; for there is not a common one on which they can graze, so that they are tied up in stalls when not employed in the field. Dairy farms are unknown in China, where people use neither milk, butter, nor cheese.”

In a recent letter from China, the writer mentions, among other matters, that in giving a good dinner to some distinguished friends, one of the choicest dishes was a leg of mutton, the cost of which was equal to 30s.

Having submitted specimens of the wool of this animal to my friend Dr. Price, who kindly forwarded the same to Mr. Darlington, the Secretary to the Chamber of Commerce at Bradford, for the purpose of having it examined by the most competent judges, the

following report from these gentlemen was received. They say, "That the sample of sheep's wool from China enclosed in Dr. Price's letter, is a class of wool which would be extensively used by the manufacturers of this district for goods of low quality; that it appears to be wool suitable for combing purposes, and would now command about one shilling per pound."

That the wool does not appear to offer any great inducement for its introduction will be seen by the above report, but I think it highly probable that, by cultivation and judicious crossing, a great improvement may be fairly looked for. It is, however, a matter of the utmost importance to us that we should possess animals whose power of reproducing is greatest, in order to supply the increased demand for meat.

The origin of our domestic animals has been a subject of much discussion; the remote period of their domestication involves us in much doubt; and this mystery and obscurity will probably never be satisfactorily cleared up. It is, however, interesting to find in a country whose civilization is of such ancient date as China, the most perfect of domestic animals: I mean by this, the animals that are furthest removed from their natural condition.

Now, knowing what wonderful changes can be, and are produced in the vegetable kingdom by skilful modes of propagating, cultivating and artificially treating plants, causing them completely to change their nature, producing all kinds of variety of monstrous growth, double flowers, fruit and seed in enormous abundance;—all this being done by the interference of man, may I ask, is it not probable that a people like the Chinese, whom we know to have practised these arts for ages,—is it not likely that they have by artificial means induced a similar power in these domestic animals; as we find, for example, the pigs, the fowls, the geese and the sheep of China more prolific than the same animals in any other part of the world? Instances of Chinese sows producing twenty-two at a litter have come within my own observation; their fowls are certainly unequalled for the number of their eggs, and their geese as reproducers stand unrivalled.

It is almost needless to say, that the result of cultivation, whether as applied to plants or animals, has produced an unnatural and abnormal condition: instances too numerous to mention may be found, but it will be sufficient to notice the pigeons and ducks. The former in a wild state produce only two broods in a season; while in a state of domestication they continue to breed all the year. The domestic ducks not only produce a much larger number of eggs, but one drake is sufficient for a number of ducks, five or six; while in a state of nature they universally are found in pairs.

Experience has proved that by a careful admixture or crossing in the breed of the Chinese pigs, geese, and fowls, the mixed races are much improved in quality and size, while they retain the reproductive power undiminished, and the animals are more hardy. As regards poultry, I cannot admire the celebrated Cochin China breed in their pure state, but I have abundant proof of their great

value for breeding and crossing; the least possible trace of the breed appears sufficient to impart all that is desirable, and by after-breeding, the improvement that may be made is as astonishing as it is undeniable. As crossing the breed in the animals before mentioned has been attended with so much success, there is no reason why crossing the Sheep should not also produce a favourable result.

It must not be supposed, because the Chinese have banished their Sheep (having found cotton and rice more suited to their climate and better adapted to their wants), that they are unworthy of our notice, taking into consideration that in this country we cannot grow cotton or rice.

Having witnessed the many attempts that have been made to reduce some of the existing wild animals to a state of domestication, and observing the utter failure in all instances of producing what may fairly be called a domestic variety of any true species, I am inclined to believe it is necessary as a means of reducing wild animals to a domestic condition, that they must be crossed with nearly allied species; by this means the creatures are rendered unnatural, and consequently dependent on man. Different varieties would doubtless be produced, according to the manner in which they were crossed, and permanent varieties would be thus established. Such is the opinion at which I have arrived, after a long and mature consideration of this extremely interesting subject.

June 23, 1857.—Dr. Gray, F.R.S., V.P. Zool. & Ent. Soc.,
in the Chair.

ON TWO SPECIES OF BATS INHABITING NEW ZEALAND.
BY ROBERT F. TOMES.

The first notice of the occurrence of *Cheiroptera* in New Zealand was given by Forster in 1772–74*, who recorded the occurrence of a Bat flying over the sea-shore near the margin of a wood in the estuary of Queen Charlotte. It was shot, but being struck only in the wing, lived for two days. “He was described by me,” says he, “and was drawn by my son.” To this species Forster gave the name of *Vespertilio tuberculatus*. The description has been published in the work noted below, and the drawing is now in the British Museum. I shall have occasion to refer to both the description and the figure.

In 1843 Dr. Gray gave a very condensed description of a Bat in the Appendix to Dieffenbach’s Travels in New Zealand, which he, believing to be the species mentioned in the MSS. of Forster, called by the same specific name. As Dr. Gray had specimens for examination, he at once perceived that they could by no means be considered as representatives of the genus *Vespertilio*, and that they did not even belong to the same family. Accordingly we find them in the ‘Catalogue of the Mammalia of the British Museum,’ pub-

* Descriptiones animalium in itinere ad maris australis terras per annos 1772–74 suscepto observatorum, edidit H. Lichtenstein. 1844.

lished in 1843, placed in the family *Noctilionina*, with the new generic appellation *Mystucina*, the old specific name *tuberculata* being retained.

Having some time since had occasion to examine some species of Bats in the Museum of the College of Surgeons, Prof. Quekett showed me one which had been recently received from New Zealand. It was not until I had been assured that it came directly from that country, in a bottle with a collection of New Zealand insects, that I could be persuaded that no mistake as to locality had been made. The forms presented by this example were so entirely unlike those of the only New Zealand species with which I was acquainted, that it was with considerable surprise I beheld a bat having pretty much the same forms and proportions as the common little English *Pipistrelle*.

Shortly afterwards an opportunity occurred of inspecting the fine collection of *Cheiroptera* in the Leyden Museum, which contains three examples of this supposed new species, but without any specific name. Finally, I detected other examples in the British Museum, amounting in number to five.

Being then satisfied of the existence of two species of Bats in New Zealand, I was anxious to pursue the subject further, and to determine, if possible, to which of these Forster had given the name of *V. tuberculatus*. The kindness of Dr. Gray speedily placed in my hands all the necessary materials. There could be no hesitation; the supposed new species was undoubtedly the one from which Forster's drawing had been made, whilst the description, indicating the number of incisors, and other peculiarities, pointed unequivocally to the same conclusion.

As the above-mentioned zoologists have certainly been the first describers of two distinct animals, the names imposed by them will of course be retained; but it is much to be regretted that their specific names are similar; and the more so, as the one most recently given was clearly intended as a reference to the earlier known species.

The following description has been taken from the specimen in the College of Surgeons, and also from the specimens in the British Museum. With the advantages of specimens in spirit and in skin, it is probable that the description will be found tolerably correct, both as regards the form of the face, ears, &c., and the quality and colour of the fur.

Fam. VESPERTILIONINA.

1. *SCOTOPHILUS TUBERCULATUS*, Forster, *Descript. Anim.* p. 63, 1772-74, *Icon. ined. in Brit. Mus.* t. 1.

In form and proportions somewhat resembling the Pipistrelle of Europe; in size resembling Vesp. Nattereri; in colour very nearly similar to the Scotophilus Gouldii of Australia.

The muzzle is rather broad and obtuse, and moderately hairy. The nostrils are tumid, and of an oval form, with their inner margins more prominent than their outer, giving them a sublateral opening;

they are distant from each other about two lines. The forehead is rather flat. The lower lip is broad, with the extreme edge naked, and rather thickly clothed with short hair on the chin, which becomes very thick on the throat. Immediately within the *symphysis menti* is a small but distinct wart.

The ears are rather small, oval-triangular, with a pretty uniform outline, and with a kind of plait or crease on the basal front of the inner margin, giving that part of the ear a slightly projecting lobe, not however of sufficient magnitude to interfere materially with its general uniformity of outline. The outer margin is not hollowed out, but maintains a pretty regular curve, and has its basal portion brought forward, in the form of a narrow rudiment of membrane, on to the cheek, where it ends immediately under the eye.

The tragus is short, rather broad, and of nearly uniform breadth, with the end round. It has, as in all the other species of this restricted group, an inward curvature.

The wing-membranes spring from the base of the toes, and the latter occupy about half the length of the entire foot. The *os calcis* extends one-third of the distance from the foot to the tip of the tail, which has its extreme tip free.

The face is furnished with some tufts and lines of bristly hair. Immediately in front of the eye may be noticed a tuft, consisting of a few hairs, and on the gland of the upper lip is a similar one. From behind the nostril proceeds a narrow band of fine bristly hairs, which curves downwards and backwards on the lip for a short distance, and then taking an upward curvature, passes in front of the eye, and is lost in the fur of the forehead.

All the membranes, both above and below, have those parts contiguous to the body, hairy, especially the interfemoral, on which it extends more markedly than elsewhere. The part of the latter membrane which is destitute of hair is smooth, and has about ten transverse strongly dotted lines.

Over the whole of the body the fur is very thick, soft, and rather long. On the top of the head it is long enough to obscure the basal half of the ears, and thus give the appearance of an elevated crown.

Everywhere the hair is unicoloured, and of a black-brown colour on the head and back, passing into chestnut-brown on the rump. Beneath it is similar in colour, but more strongly tinged with brown, especially towards the pubal region, where it is reddish-brown.

On examining the cranium, I find that its chief peculiarity consists in its extreme shortness in relation to its other dimensions. In this respect it more nearly resembles the cranium of *Lasiurus noveboracensis* than that of any other species of Bat I have yet seen, but it is even shorter than in that species. In its general conformation it bears considerable resemblance to that of the common *Pipistrelle* of Europe, especially in the degree of elevation of the cerebral region; the arrangement of the dental series is more like that of the *Noctule Bat* than that of the *Pipistrelle*, but bears a still greater resemblance to that of the *Scotophilus Gouldii* of Australia. Thus, on examining the teeth of the upper jaw, they are seen to be arranged

in two *straight* lines which are nearly parallel, the incisors only deviating from these lines, being placed across the front of the space enclosed by them. This enclosed space—constituting the anterior part of the palate—is nearly a parallelogram, being but slightly narrower in front than posteriorly. Its length to its breadth is as one and a quarter to one.

The range of the teeth in the lower jaw must, of course, bear exact relation to that of the upper *, varying only in the number of the teeth and their individual form.

The number of the teeth is as follows :—

$$\text{In. } \frac{2-2}{6} ; \text{ Can. } \frac{1-1}{1-1} ; \text{ Premol. } \frac{1-1}{2-2} ; \text{ Mol. } \frac{3-3}{3-3} = \frac{14}{18}.$$

The upper incisors are arranged in pairs, of which the inner one of each pair is much larger than the outer one. They are all somewhat elongated, conical, and pointed, and when viewed in front are seen to have their points directed inwards, but when seen laterally have nearly a vertical direction, similar in this respect to the canines. A considerable interval separates them on each side from the latter teeth, and this, with their regular conical outline and nearly vertical position, constitute their chief peculiarities. In the centre, between the inner ones, is a considerable opening, caused by the non-development of the anterior margins of the intermaxillary bones, and the notch in the front of the palate, just as in the *Noctule Bat* and most other true *Vespertilionidæ*. The other teeth in the upper jaw present no deviations from what is usual in the genus.

In the lower jaw the incisors are of the form ordinarily observed in this genus ; they are symmetrically arranged and trilobed. The canines present no marked peculiarities of form. The premolars are small, pointed, and have their basal cusps less developed than those of the corresponding teeth in the *Noctule Bat*. The first of these teeth is much the smaller of the two. The molars differ in no respect from those of the above-mentioned species, excepting that their cusps are perhaps somewhat longer and more pointed.

In the following Table of dimensions, the first column represents the measurements of the specimen in spirit in the Museum of the

* It will not be out of place here to remark, that this expression applies exclusively to the normal state of dentition of animals in a state of nature. The reverse of this may occasionally be seen in accidental varieties or malformations, and frequently in domesticated animals, where a great change in the form of the jaws and teeth has often resulted from long-continued selection of individuals from which to produce a breed for some special purpose, which selection may have been further assisted by a constant training to the purpose for which the breed was designed. This must certainly be the case with some of the varieties of dogs. In the bull-dog, for instance, we find a most remarkable development of lower jaw, attended with an equally distorted arrangement of the teeth. It is scarcely necessary to allude to the singular appearance often observable in the front teeth of the human species, under- or over-lapping each other, as the case may be, and displaying every degree of intermediate arrangement. But these deviations from the normal state of dentition in no way affect the statement above made respecting the relation of the inferior to the superior maxilla, and their implanted teeth.

College of Surgeons, before alluded to, and the other columns have been taken from specimens in skin in the British Museum:—

	No. 1.	No. 2.	No. 3.	No. 4.
Length of the head and body..	2 1	" "	" "	" "
— of the tail	1 7	1 6		
— of the head.....	0 7 $\frac{1}{2}$			
— of the ears	0 3 $\frac{1}{2}$			
— of the tragus	0 1 $\frac{3}{4}$			
— of the fore-arm	1 6	1 6	1 6	1 6
— of the longest finger ..	2 8	2 10	2 8	2 7
— of the fourth finger ..	1 10	1 10	2 0	2 0
— of the thumb.....	0 2 $\frac{1}{2}$	0 3 $\frac{1}{4}$	0 3 $\frac{1}{2}$	0 3 $\frac{1}{2}$
— of the foot and claws..	0 3 $\frac{3}{4}$	0 4	0 4	0 4 $\frac{1}{2}$
Expanse of wings	10 9	10 4		

The foregoing description had been taken with a view to its publication, before that of Forster had been examined, the impression at that time being that the species was new.

For the convenience of immediate comparison, and to show the general similarity of the two descriptions, a condensed description will now be given of that furnished by Forster.

About the size of *Vesp. communis*, or a little larger; the head like that of a mouse, and of medium size; snout blunt, emarginate, simple, with bi-tuberculated nostrils. The lower jaw rather shorter than the upper.

Incisors in the upper jaw 4, in pairs, of which the two inner ones are the larger; the two outer ones smaller, and approximate to them. In the lower jaw 6, very small and approximate. *Laniarum* (?) $\frac{1-1}{3-3}$; molars $\frac{4-4}{4-4}$.

Ears moderate, smooth, subovate; tragus semiorbicular. Wings large and dark brown. The fur everywhere soft, fine, and rusty brown.

Length from the end of the nose to the root of the tail.....	2 inches.
Length of the tail	1 $\frac{3}{10}$,,
Expanse of wings	10 $\frac{1}{2}$,,

Fam. NOCTILIONINA.

Genus MYSTACINA, Gray.

Body very short and broad. Snout much produced; nostrils sublateral, surrounded by a thickened projecting rim. Under jaw much shorter than the end of the nose. Top of the head considerably elevated; ears lateral, simple; tragus long, narrow, and pointed. Wings moderate; thumb moderate. Index finger with two phalanges, second finger with *four*, third and fourth fingers with three, each. Wing-membranes extending to the distal extremity of the tibia. Legs and feet short and stout. Tail very short, piercing the

interfemoral membrane near to its base, and projecting on the upper surface of it, as in *Taphozous*. Interbrachial membrane, a narrow piece of membrane beneath the fore-arm, that adjoining the sides of the body, and that enclosing the tibia, as well as the basal portion of the interfemoral membrane, thick and leathery, with numerous deep wrinkles or corrugations on its upper surface. Incisors, 2 in the upper jaw, large, contiguous, and shaped like canines; in the lower jaw 2, small, and placed in front of the canines.

1. MYSTACINA TUBERCULATA, Gray.

Mystacina tuberculata, Gray, Cat. Mam. Brit. Mus. p. 34, 1843; Gray in Dieffenb. Journ. App. p. 296, 1843; Gray, Zool. Voy. Sulphur, No. II. p. 23, 1843; Zool. Voy. Erebus and Terror, No. IV. pl. 22. 1844.

The snout of this singular-looking species is considerably elongated, with the end of the nose emarginate between the nostrils, which are very prominent, and directed sublaterally. The mouth is placed far back in relation to the nose, and a space intervenes between the two, which is clothed with very fine short hairs. The hairiness and form of this space are somewhat similar to the same part in the *Coati Mondí*. No very strongly-marked peculiarity is observable in the mouth itself, but it is rather small, and has only the extreme edges of the lips destitute of hair.

The top of the head is convex, rounding off on every side, and the space between it and the end of the nose, *i. e.* the face, is concave in its longitudinal direction, but not transversely, as in *Taphozous*.

The ears are lateral, and remarkably simple in form. Instead of the forward extension on the side of the face, so usual in the insectivorous species of this order, they are attached precisely as in the fruit-eating species, *i. e.* just as we may observe them in a *dog* or *cat*. In form they are regularly oval, and slightly pointed. The tragus is straight, narrow, and pointed, reaching to the middle of the ear.

The wings are rather broad, and of medium length. The thumb is of moderate size, with the basal joint very short; the index finger is composed of two phalanges, the terminal one being very minute. The second finger has *four* phalanges, and the third and fourth fingers have three each. The presence of four phalanges in the second finger, instead of the usual number of three, in this family, will be again adverted to. The wing-membranes barely extend to the distal extremity of the tibia.

The legs and feet are very short and stout, as in the genus *Molossus*. The heel-cartilage is of medium length and substance, and the interfemoral membrane is rounded at its posterior margin, and is perforated near its base by the tail, which is short, and exhibits its terminal half free above the membrane, as in the genus *Taphozous*.

The portions of membrane contiguous to the fore-arm, the sides of the body and the tibia, are very thick and leathery, with numerous deep wrinkles, and the basal half of the interfemoral membrane (as far as to where the tail becomes free) possesses the same peculiarity. The wrinkles, in many places, cross the legs and fore-arms, but they

are only observable on the *upper* surfaces of the membranes and limbs. This singular part of the cutaneous system is marked by a regular and decided outline, and can scarcely be said at any place to graduate into the smooth membrane of the wings. Its extent is pretty well indicated by the hairy portions of the membranes in the genus *Lasiurus*, excepting that it only occupies one-half of the interfemoral membrane.

In its general character, the fur is short, crisp and thick, having a grizzly shining appearance, very similar to that of some of the *Soricidæ*. That of the head extends towards the nose, and covers the whole of the face, being bounded anteriorly by a frill of stiff upright hairs; that commencing near the corner of the mouth extends upwards in front of the eye, and meets on the top of the nose with the corresponding part of the other side of the face. On all the upper parts of the body the fur is similar. It is dusky at its base, and tipped for half its length with shining grey-brown, having a slight tinge of olive. Beneath, the fur is brown at its base, with shining tips of grey-brown. The fur of the throat extends to the chin and under-lip, and densely covers the whole, excepting the extreme edge of the lip.

The whole of the cutaneous system is very dark brown, with the exception of the wrinkled part already mentioned, which is paler, and tinged with yellowish.

The cranium exhibits some peculiarities worthy of note. Viewed from above, the cerebral portion is seen to be about as much arched as that of *Vesp. Nattereri*, and has a faint sagittal crest towards the occipital region. There is also a moderately pronounced occipital crest, which becomes more strongly developed in the vicinity of the acoustic elements of the skull. The auditory bullæ have much the same form and proportion as the same parts in *Vesp. Nattereri*, and the facial portion of the skull is proportioned much as in that species. The orbital openings are of very moderate size, and the zygoma but little arched, and very slender. The bony palate terminates a little posteriorly to the last molar. The nasal opening is small, and the intermaxillary bones meet in front, for the support of the contiguous incisors, as in *Miniopterus* and *Furipterus* among the *Vespertilionina*, and *Molossus*, *Rhinopoma*, and *Noctilio* among the *Noctilionina*.

The incisors in the upper jaw are two in number, large, conical, and pointed. They are provided with a distinct *cingulum*, visible in front, which passes into a well-marked basal lobe, or cusp, behind the tooth. As the incisors are situated very near to the canines, and are themselves in contact, this lobe is only visible when seen directly from behind. The incisive foramina are two in number and very minute. The canines are long, pointed, and triangular, without any basal lobe. The next two teeth in the upper jaw present the same forms which usually characterize the premolars in the insectivorous *Cheiroptera*; and the three remaining teeth, *i. e.* the molars, may be similarly passed over.

The hinder part of the lower jaw is formed very similarly to the same part in the genus *Vespertilio*, but has the *posterior process* less

produced. Another point of difference occurs in the form of a somewhat rounded *posterior angle*, something like that observable in *Fu-ripteris*, but more nearly resembling the same part in the jaw of the *Ursus labiatus*, and, as in the latter instance, very thin in substance laterally. The jaw itself is straight, especially the alveolar margin, which is in a line continuous with the *posterior process*.

The canines in the lower jaw are of considerable size, and have a basal lobe behind. They are nearly contiguous, and the incisors, two in number, are placed in front of them, as in some species of the genus *Molossus* (*Nyctinomus*), and, as in that genus, are probably lost with age. They are very small, feebly implanted in the jaw, and have their tips trilobed. The next two teeth are of the usual premolar type, such as we find in *Vespertilio* proper, and they are succeeded by the three molars, presenting no marked peculiarities of conformation.

Dentition:—In. $\frac{2}{2}$; Can. $\frac{1-1}{1-1}$; Premol. $\frac{2-2}{2-2}$; Mol. $\frac{3-3}{3-3} = \frac{14}{14}$.

In the following Table of dimensions, column No. 1 has been taken from a large and probably adult specimen in the British Museum, and Nos. 2 and 3 from specimens, perhaps not quite adult, in my own collection. The latter one, having all the bones retained, would furnish the more exact dimensions, but that it is probably immature. From it the skull was extracted, from which the above characters have been taken:—

	No. 1.		No. 2.		No. 3.	
Length of the head and body	" 2	" 6	" 2	" 4	" 2	" 4
— of the enclosed part of the tail . .	0	3	0	3	0	3
— of the free part of the tail	0	3	0	3	0	2½
— of the head	1	0½	0	11½	0	11
— of the fore-arm	1	9½	1	7	1	8
— of the longest finger	3	0	2	11	2	11½
— of the fourth finger	2	6	2	4	2	4
— of the thumb	0	5	0	4½	0	4
— of the tibia	0	8	0	7	0	7
— of the foot and claws	0	7½	0	6	0	6
Expanse of wings	12	0	11	10	11	6

The following are the dimensions of the skull extracted from the specimen which has supplied the measurements given in the second column of the above Table:—

Length from the occipital crest to the anterior margin of the maxillary bones	" "	0	9¼
Breadth across the zygomatic arches	" "	0	5
Length of the nasal bones	" "	0	3
Greatest breadth of the nasal bones	" "	0	1¼
Length of the dentinal series in the upper jaw	" "	0	4
Breadth between the two outer cusps of the two posterior molars	" "	0	3½
Breadth between the points of the two upper canines	" "	0	1½

Total length of the lower jaw	0	6 $\frac{1}{2}$
Length of the dentinal series in the lower jaw	0	4
Breadth between the outer cusps of the two posterior molars	0	2 $\frac{3}{4}$
Breadth between the points of the lower canines	0	1

In summing up the characters of this singular species (which, as far as is known, is the sole representative of the genus), several affinities not usually associated are manifest. Thus in the form of the tail, and the way in which it perforates the interfemoral membrane, it bears strong resemblance to the genus *Taphozous*, whilst the strength and form of the hinder limbs, but more especially the form and implantation of the canine and incisor teeth, would seem to indicate an affinity with the genus *Molossus* (*Nyctinomus*), both of these genera being representatives of the family *Noctilionina*. Again, on examining attentively the forms of the ear and tragus, we shall be struck with the great resemblance which the latter bears to that of some of the examples of the genus *Vespertilio*, and the former, although differing considerably from the ear in *Vespertilio*, bears nevertheless a greater resemblance to it than perhaps to that of any other genus. But there is another peculiarity to which I have already alluded, which is deserving of especial notice—the presence of *four* bony phalanges in the second finger,—a peculiarity in which it resembles the *Phyllostomidæ* or Leaf-nosed Bats of the New World, that number being one of their characteristics; whilst in all the Old World genera, with the exception of the one now under notice, we find that that finger has only *three* bony phalanges*. There are, however, several characters present which appear to belong exclusively to the present genus, such as the form of the snout and nostrils, the singular markings on some of the membranes, and the peculiar quality of the fur.

MISCELLANEOUS.

Note on Elephant Remains from the Gravel near Ballingdon Hill, Essex. By JOHN BROWN, Esq., F.G.S., of Stanway.

To the Editors of the Annals of Natural History.

Stanway, near Colchester, Oct. 1, 1857.

GENTLEMEN,—In the eighth volume of the Magazine of Natural History, for the year 1835, p. 353, is an article which at that time I had the pleasure of sending to Mr. Loudon, the then editor of that interesting and very useful work, on some fossil remains (teeth and bones) found at that time in a gravel-pit at Ballingdon, Essex, near Sudbury. These remains consisted of tusks, teeth, and many bones of

* A similar peculiarity occurs in the genus *Centurio*, which, when first described by Dr. Gray, was thought to be a native of the Old World, but there was some doubt as to the exact locality from which it had been received. But other examples have been since obtained from the New World, and its near alliance with the tailless *Phyllostomidæ* has been satisfactorily established. The existence therefore of *four* phalanges in this finger in *Centurio* cannot be considered, as in *Mystacina*, as an exception to a general rule, but on the contrary as a further extension of it.